# **Typical Spectrum Coordination**

# Antonio P. Lavarello Spectrum Management Engineer

Computer Sciences Corporation
National Oceanic and Atmospheric Administration

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# **Coordination of Satellite Systems**

**Domestic and International Process** 

# Coordination vs. Consultation

#### **Coordination**

Formal requirement between Administrations/Countries to achieve an agreement on frequency allocation.

#### **Consultation**

Exchange of information between Administrations/ Countries to determine potential interference and present solutions for frequency allocation.

# **Coordination of Satellite Systems**

#### **Purpose:**

- Determine whether newly filed systems are likely to interfere with your existing systems.
- Determine whether a new filing that you propose could interfere with existing systems.

# **Coordination of Satellite Systems**

(cont'd)

- Coordination can take place on a domestic, regional or international basis.
- Satellite coordination occurs by negotiating mutually satisfactory solutions for any difficulties identified in the AP phase. However, there is no formal requirement to successfully resolve these difficulties.
- Satellite coordination is carried out according to procedures set out in Article S9 of the Radio Regulations.

# Coordination of Satellite Systems Domestic Process

- Through NTIA, only represents Government agencies
- Four stages of review conceptual, experimental, developmental, operational
- Detailed assessment of satellite system by NTIA's System Review Branch at each stage
- Need Stage 4 (operational) NTIA approval (i.e. Certification of Spectrum Support) before authorization to operate system can be granted
- Final step in process is to obtain necessary frequency assignments from NTIA's Frequency Assignment Subcommittee

# Coordination of Satellite Systems International Process

#### **International Registration Process**

- The AP is submitted to the ITU for approval.
- The submission is reviewed and published for the review of any other administrations.
- Concerned administrations have a determined time to send comments in respect to the new satellite system.
- System is notified.

# Coordination of Satellite Systems International Process

(cont'd)

- Geostationary satellites follow strict ITU coordination guidelines
- Non-geostationary satellites are required to file with ITU, but only respond to those administrations which request coordination
- NPOESS Preparatory Project (NPP) received 10 responses for coordination based on filed frequency bands by 120-day response deadline

# Coordination of Satellite Systems International Process

(cont'd)

- Exchange of information (consultation) between NOAA and affected administrations/countries to determine if any potential for interference exists
- If interference potential exists, try to find way to either eliminate or minimize harmful interference so affected space systems can successfully meet mission objectives
- Coordination process between countries may last several years
- Once complete, ITU is notified of the countries with whom coordination occurred, thereby ending international phase

# **Coordination between**

# U.S. NPOESS and EUMETSAT's METOP System



#### **NPOESS**

- National Polar-orbiting Operational Environmental Satellite System (NPOESS)
- Converge existing Air Force & NOAA polar-orbiting satellites into an integrated national program.
- Polar-orbiters in low Earth orbit are used to monitor global environmental conditions, collect and disseminate data related to: weather, atmosphere, oceans, land and near-space environment.



#### **METOP**

- Europe's first polar-orbiting satellite dedicated to operational meteorology.
- It represents the European contribution to a new cooperative venture with the United States providing data that will be used to monitor our climate and improve weather forecasting.
- MetOp is a series of three satellites to be launched sequentially over 14 years, starting in 2005, and forms the space segment of EUMETSAT's Polar System (EPS).

# **METOP Advance Publication Submission**

FOR AGENDA

**Publication** Date



SSG-24634

UNION INTERNATIONALE DES TELECOMMUNICATIONS BUREAU DES RADIOCOMMUNICATIONS

INTERNATIONAL TELECOMMUNICATION UNION RADIOCOMMUNICATION BUREAU

UNIÓN INTERNACIONAL DE TELECOMUNICACIONES OFICINA DE RADIOCOMUNICACIONES

SECTION SPECIALE NO IFIC / DATE 2415 / 21.03.2000 API/A/1193 IFIC / DATE SPECIAL SECTION No. IFIC / FECHA SECCIÓN ESPECIAL N.º RESEAU(X) A SATELLITE ADMINISTRATION RESPONSABLE F/ESA METOP SATELLITE NETWORK(S) RESPONSIBLE ADMINISTRATION **RED(ES) DE SATÉLITE** ADMINISTRACIÓN RESPONSABLE

**Satellite** Network

RENSEIGNEMENTS REÇUS PAR LE BUREAU LE 17.12.1999 INFORMATION RECEIVED BY THE BUREAU ON INFORMACIÓN RECIBIDA POR LA OFICINA EL

> Esta información relativa a las redes de satélite regidas por el artículo S9, sub-sección 1A, se publica por la Oficina de Radiocomunicaciones en virtud del No. S9.2B. Está sujeta al (a los)

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Ces renseignements concernant les réseaux à satellite régis par

(see comments of the Radiocommunication Bureau)

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Toute administration étant d'avis que des brouillages inacceptables peuvent être causés à ses réseaux ou à ses systèmes à satellites existants ou en projet devra communiquer ses observations sur les caractéristiques des brouillages prévisibles à l'administration responsable, avec copie au Bureau des radiocommunications, dans le Any administration which is of the opinion that unacceptable interference may be caused to its existing or planned satellite network or system shall send its comments on the particulars of the anticipated interference to the responsible administration, with a copy to the Radiocommunication Bureau, within four months after the date of this publication.

This information on satellite networks covered under Article S9, Sub-

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DATE LIMITE POUR LA RECEPTION DES COMMENTAIRES EXPIRY DATE FOR THE RECEIPT OF COMMENTS FECHA LÍMITE PARA LA RECEPCIÓN DE LOS COMENTARIOS

07.07.2000

**Due Date** for Comments

Date received

by the

Bureau

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à satellites ou ses stations de terre, selon le cas, existants ou en projet,

sont affectés, peut envoyer ses observations à l'administration qui a

demandé la publication des renseignements, avec copie au Bureau des

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Les renseignements ont été reçus conformément au No. S9.1 Les renseignements ont été reçus conformément au No. S9.2 Toute administration estimant que ses réseaux à satellite, ses systèmes

Radiocommunications.

The information has been received pursuant to No. S9.2 Any administration which considers that its existing or planned satellite systems or networks or terrestrial stations, as appropriate, are affected, may send its comments to the administration which has requested publication of the information, with a copy of such comments to the Radiocommunication La información ha sido recibida de conformidad con No. S9.2 Cualquier administración que considere que sus sistemas o redes des satélites o estaciones terrenales, según el caso, existentes o planificados se verán afectados, podrá comunicar sus comentarios a la administración que haya solicitado la publicación de la información, enviando una copia de dichos comentarios a la Oficina de Radiocommunicaciones.

Information aussi disponible sur le/Information also available on the/Información también disponible en: Space Network Systems Online Service:

http://www-br/sns/advpub.html

### **Coordination Issue**

Probability of interference in the X-band (8212.5 MHz) between METOP and NPOESS during downlink connection to CDA site Svalbard.

# **Coordination/Consultation Considerations**

#### **METOP**

- X-band is used for downlink of store data to CDA site Svalbard. Point to point transmission
- Use of spot beams during specific times.
- Priority since it was filed first.

#### **NPOESS**

X-band is used for continuous broadcast.

- Use of wide beam during all times.
- No priority since METOP filing already existed.

### **Possible solutions**

- Avoid interference by carefully scheduling launch times.
- Control broadcast signal as to not create interference to Svalbard.
- Solution: Adjust orbits and time sharing.

# **Status and Plans**

- Preliminary discussion between NPOESS and METOP.
- NPOESS submitted Stage 2 for the Domestic Process (August 1999).
- NPOESS has not submitted the Advance Publication for International filing. This submission must be no sooner than 7 years before launch. Date for submission Spring 2003.
- Stage 4 (Domestic Process) is been prepared for Spring 2003.
- Once AP is submitted, there is an certain period for comments from Administrations/countries.
- Complete coordination then submit ITU Notification.